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PAPERS

IN

MANUFACTURES.

The SILVER MEDAL set in a broad Gold Border was this Session voted to the Patrons and Committee of the Flag Association, for a matchless Specimen of double Brocade Weaving in a Flag, now executing at No. 17, Gun-street, Union-street, Spital Fields. The following Communication was received from them.

MY LORDS AND GENTLEMEN,

IT having been represented to many of the nobility and gentry of this country, that the Spitalfield's weavers are not able to manufacture silk goods equal to foreigners, and in consequence of such an idea, many wrought goods having been smuggled into this country to the great injury of the silk weavers; a subscription has been opened by them, for
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the purpose of raising a sum of money to weave a flag, as a proof of their ability, superior to any thing ever yet executed in this or any other country, and of which a description is annexed. This great undertaking has at much pains and expense been actually commenced, and is now in a state of forwardness; and the Silk Weavers being sensible that you are the patrons and encouragers of British Arts and Manufactures, take the earliest opportunity of requesting you will condescend to view this great and novel work in the loom, and if it meets with your approbation and encouragement, it will give them great pleasure.

Signed in behalf of the Silk Weavers, by

THOMAS ATKINS, President

Spital Fields, Sept. 2, 1808.

To the SOCIETY instituted at London
for the Encouragement of Arts,
Manufactures, and Commerce. }

Description of the Flag now in the Loom.

Its dimensions are two yards wide, the ground a rich crimson satin on both sides, and brocaded on each side alike, with appropriate colours tastefully and elegantly shaded by the artist. Upon its surface will appear woven within an oval, a female figure emblematic of the art of weaving, reclining with pensive aspect on a remnant of brocade, lamenting the neglected state of this manufacture. A figure of Enterprize is represented in the generous act of raising her up, and reviving her drooping spirits, by showing her a cornucopia pouring forth its treasure, emblematical of the resources of this happy isle, and not unaptly indicating that the wealth and liberality of the British nation are ever ready

to support laudable undertakings, and particularly those intended for the relief of indigent merit. Close to that of Enterprize, and under a representation of the all-seeing eye of Divine Providence, the figure of Genius appears erect, pointing to a flag displaying the *Weavers' Arms*, placed upon the temple of Fame, seeming by her expressive countenance to say, "execute your arduous task, Britannia will reward your labours, and Fame inscribing them on her sacred edifice shall record the merits of this grand exertion to posterity."

The corners of the flag will be adorned with emblems of peace, industry, and commerce. An edging with a curious Egyptian border will exhibit a combination of figures and devices, emblematic of the design for which it was formed, and the whole will in an expressive manner show to the world this interesting fact, that under the auspices of Divine Providence, and cherished by the blessings of peace and commerce, the British artists, when fostered and protected, are inferior to none throughout the globe.

THE Society attended with pleasure to the request of the Silk Weavers, and appointed a committee to inspect this performance in the loom, who reported to the Society, that the specimen of weaving there exhibited to them was superior to any thing they had ever seen or heard of, and that it was well deserving of the attention and protection of the Society.

The Committee recommended to the Society, that their Silver Medal set in a broad gold border, and inscribed to the Patrons and Committee of the Flag Association, should be presented as a bounty to them, as a mark of encouragement for the great exertions they had made, and the many in-

genious

genious improvements now shown in this valuable branch of weaving.

The Society agreed with their Committee in these resolutions, and the Medal so inscribed was delivered by the hands of his Grace the Duke of Norfolk, the President, on the 30th of May, 1809.

The work is proceeding in the loom, and such ladies or gentlemen as wish for admission to see it, may procure cards for the purpose from any one of the undermentioned persons.

PATRONS.

Mr. WILLIAM TITFORD, Manufacturer, 1, Union Street, Bishopsgate, Treasurer.

Mr. WILLIAM HALE, Manufacturer, 4, Wood Street, Spitalfields.

Mr. JOHN KINCAID, Manufacturer, 28, Spital Square.
Messrs. RACINE and JACQUES, Dyers, Hare Street, Bethnal Green.

COMMITTEE.

THOMAS ATKINS, Maiden Lane, Wood Street, Chertsey-side.

ELIAS FLETCHER, 9, Gun Street, Old Artillery Ground.

WILLIAM CARTER, 128, Brick Lane, Spitalfields.

ISAAC HOARE, 3, Farthing Street, Spitalfields.

JOSEPH BENSON, 30, Pelham Street, Spitalfields.

JOHN M'FARLIN, 6, Wilks Street, Spitalfields.

SAMUEL AGAMBAR, 37, Selater Street, Bethnal Green.

JOHN LEMEREE, 21, Pelham Street, Mile-End New-Town.

JOHN

JOHN RANDALL, 35, Church Street, Mile-End New-Town.

RICHARD CLIFF, 10, King Edward Street, Mile-End New-Town.

Or SAMUEL SHOOL, 17, Gun Street, Union Street, Bishops-gate; where the FLAG is manufacturing, who attends visitors from twelve 'till three o'clock every Friday.

THOMAS FRANK, Weaver.

T. ATKINS, Jun. Pattern Drawer and Reeder.

THIRTY GUINEAS were this Session voted to Mr. THOMAS SADDINGTON, of Monkwel-street, Falcon-square, for a Machine of his Invention, for Manufacturing Silk-covered Wire, and Thread covered with Silk. The following Communication was received from him, an Explanatory Engraving is annexed, and a working Model is preserved for Inspection in the Society's Repository.

SIR,

No. 47, Wood-street, Cheapside.

I SHALL be much obliged to you to lay before the Society of Arts, &c. a machine of my invention for the purpose of covering Wire. Having had an opportunity of seeing the process commonly used for this article, which is made in long workshops or sheds, I formed the design of a machine for making the article in a small space of room, and having completed it to my satisfaction, I now take the liberty of producing it to the Society, in hopes it will meet their approbation. There are three very material inconveniences

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attending

attending the common mode of covering wire. First: The necessity of having workshops in general from twenty to forty yards long, consequently the purchase or rent of such premises in London must be very considerable to the manufacturer. Secondly: The disadvantage of having the wire cut into pieces of the length of the workshop, for the purpose of covering it. Thirdly: The irregularity of the work so made, unless performed by a very steady hand. All the above inconveniences are fully obviated in my present invention, as the machine may be worked in a small room, and the wire may be covered of an entire length of several thousand yards if required, with a certainty of its being regular throughout the work. Besides these advantages, it requires only one person to work it, whereas in the common mode two are absolutely necessary.

The wheels might be increased and arranged in such a manner as to cover several wires at the same time, by which a great deal of work would be expeditiously performed.

The wheels being of the shape of conical pullies, admit of the work being regulated to any number of revolutions of silk or cotton round the wire, in the covering as may be necessary. Their diameters are nearly as follow, viz. on the brass tube *b* are five grooves, from about three quarters of an inch to one and a half inch in diameter. On *A* two grooves twenty-two inches. On *E* three grooves from three quarters of an inch to two and a quarter. On *F i h G* and *K* from one and a half to nine inches. *H* from five and a quarter to nine inches. *g* from three quarters to four and a half inches, all consisting of six grooves each. *m* has four grooves, from one and a half to six inches. *l* four grooves and two ratchet wheels, all nine inches. The roller *D*, and two bobbins *n* and *B*, three inches. The flyer
b c d e f

*M^r Saddington's Machine,
for covering Wire with
Silk or Thread.*

Plan, Fig. 1.

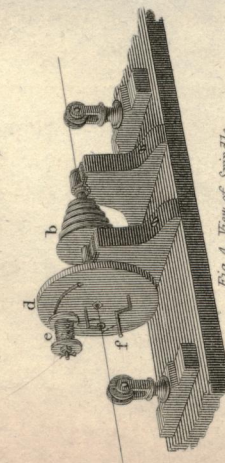
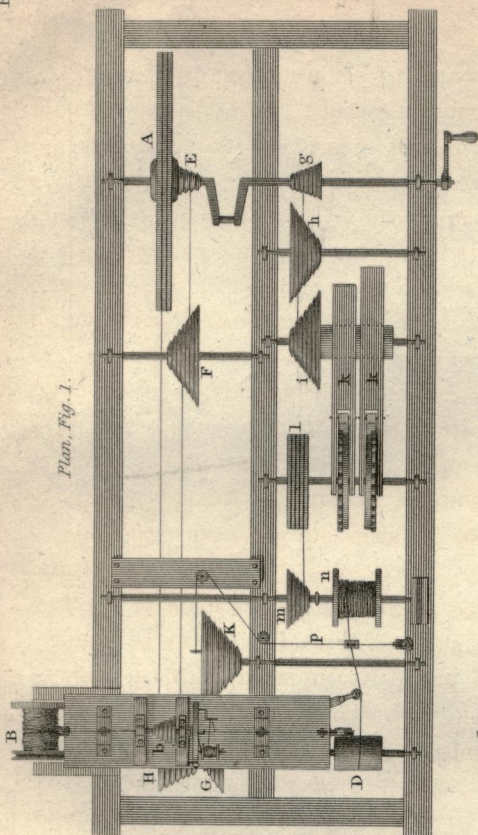
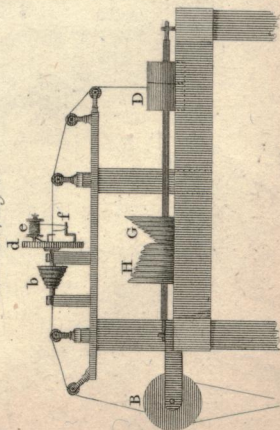
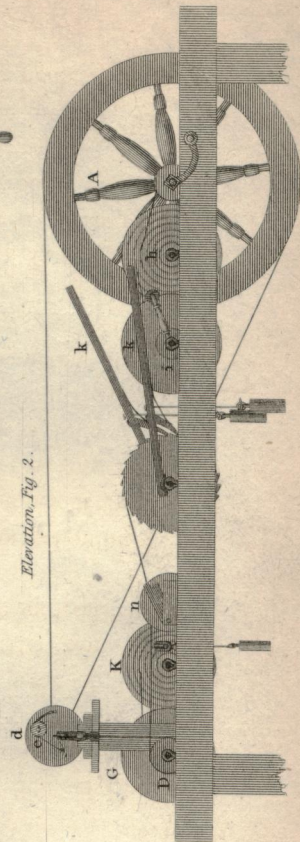


Fig. 4. View of Spindle.

End View, Fig. 3.



Elevation, Fig. 2.



b c d e f and roller D, receiving their motion from A and E, always move in proportion one to another, which causes the work to be of the same regularity. The roller D drawing over the raw wire from the bobbin B through the tube *b*, where it is covered, and passing round the roller, is taken up on the bobbin *n* by means of the ratchet wheels *L*. The wheels G and K are for regulating the wire winding on the bobbin *n*.

By placing the bands in the different grooves on the wheels *b* F and E, the covering of the wire is regulated to any degree at pleasure, as will be seen by the annexed table of the number of revolutions in one inch of covered wire. The smallest groove I call No. 1, the next size larger 2, and the largest 6.



*Table for Regulating the Number of Revolutions in
one Inch of Wire.*

		<i>b</i>				
		1	2	3	4	5
6 H	1 F	153	120	99	86	76
6 F	1 E					
6 H	1 F	132	103	85	75	66
5 F	1 E					
6 H	1 F	105	82	68	59	52
6 F	2 E					
6 H	1 F	90	70	58	51	45
5 F	2 E					
6 H	1 F	81	63	52	46	40
6 F	3 E					
6 H	1 F	75	58	48	42	37
4 F	2 E					
6 H	1 F	72	56	46	40	36
5 F	3 E					
6 H	1 F	57	44	37	32	28
4 F	3 E					
6 H	1 F	45	35	29	25	22
3 F	3 E					

EXAMPLE I.

Suppose the wire is wanted to be covered 76 revolutions in one inch, place the band on the wheel A, and on the largest or fifth groove on the tube *b*, then put the other bands on H 6, and F 1, and F 6, and E 1, it will be 76 revolutions,

as

as will be seen by the table. If the band on A and *b* 5 is removed to *b* 3, it will be 99. Again, if the band is removed to *b* 1, it will cover 153 revolutions in an inch.

EXAMPLE II.

Place the bands on H 6 and F 1, and F 5, and E 2, and *b* 5, it will be 45 revolutions. Again, place the band on *b* 2, it will be 70 revolutions in one inch, and so on for any other at pleasure.

The manner in which the action of the lever is attached to the ratchet wheel in this machine is different to anything I have seen before, and may be advantageously used in various branches of mechanics, where power with a rotatory motion is required, as it avoids the necessity of removing the lever from one hole to another round the axis or windlass. It might be usefully employed in raising the masts of barges, &c. or for the purpose of raising weights by acting as treadles. These hints I mention in hopes of leading to some mechanical improvements.

As I am not engaged or interested in making covered wire, I have shown the machine to gentlemen who are manufacturers of the article, and who have favoured me with their testimonies, approving of my invention.

I am Sir,

Your most obedient humble servant,

THOMAS SADDINGTON.

April 24, 1809.

TO C. TAYLOR, M.D. SEC.

Description of Mr. Saddington's Machine for Covering Wire. Plate II. Fig. 1, 2, 3, and 4.

Plate II. describes Mr. Saddington's machine for covering wire. Fig. 1, is an horizontal plan of it. Fig. 2, an elevation taken sideways. Fig. 3, an elevation taken from one end, and fig. 4 is a perspective view of the tube or hollow spindle of the machine; the same letters and references are made use of in all the figures. The great wheel *A*, fig. 1 and 2, is turned round by the handle on the end of its axis, or by means of a threadle applied to a crank in the middle of its axis. The wheel hath two grooves in its circumference to receive a band of catgut, by means of which it gives a rapid rotative motion to the spindle shewn in fig. 4, and denoted by *b* in the other figures; the spindle is hollow, having a hole through it to receive the wire which is to be covered with silk or thread; a small circular board *d*, fig. 4, is fixed upon the end of the spindle, and turns round with it, it has a small pin projecting from its surface, upon which is fixed a bobbin *e*, having the thread or silk to cover the wire wound upon it; on the opposite side of the center of the board, a crooked piece of wire *f* projects from its surface; the silk from the bobbin passes over this wire, and is then wound upon the wire which is to be covered, and which passes through the hole in the spindle. It is plain that the motion of the spindle will lay the thread or silk evenly round the wire; it is necessary, at the same time, that the wire should be drawn through the spindle, this is done by means of a small pulley at *g*, on the axis of the main wheel, having six grooves, turning a larger wheel of 6 grooves *h*, which gives motion by a band to another band wheel *i*, of the same size; on the axis of this, two arms, one of

of which is seen at *i* fig. 2, are fixed, which alternately move two levers *k k*, fitted on the axis of two ratchet wheels, whose teeth are caught by clicks with springs fixed to the levers; two small weights are hung from the levers, as seen in fig. 2, by which the ratchet wheels have a constant tendency to descend, and as the levers descend, they are raised up again by the arms fixed on the axis of the wheel. On the axis of the ratchet wheel a band wheel *l* is fixed, and by a band which goes round it, and one of the four grooves of the band wheel *m*, it turns the roller *n*, on which the wire is wound after being covered.

The wire which is to be covered is first wound upon a roller B, it then passes over two pulleys, and enters the spindle *b*, it is then covered with silk, &c. and is afterwards conducted over two other pulleys, and passes round a roller at D, and is then wound round the roller *n*, the roller D receives its motion from a band wheel E with three grooves, on the axis of the main wheel, these turn another band wheel F, having 6 grooves, which turns another G of 6 grooves, on the axis of the roller D; on the same spindle a band wheel H of five grooves is fixed, turning another K, which has a pin fixed in it acting as a crank, and drawing the catgut line *p* alternately backwards and forwards. This line has a ring in the middle of it, through which the covered wire passes, and by its motion it lays the wire evenly upon the roller *n*. This roller is fixed upon an axis, the end of which is received into a square socket, on the end of the spindle of the wheel *m*; this is contrived that the roller full of wire may be removed without disturbing the wheel *m*, the bearing of the end of its spindle is made in three pieces, viz. two outside ones fixed, and the middle one moving on a joint; the end of the spindle passes through a hole, and rests against the middle piece, but when this is

turned upon its joint, as shewn in fig. 2, the spindle may be drawn back so as to release it from the socket in the end of the axis in the wheel.

Certificates were received from Mr. WILLIAM WITTHALL, of Wilson-street; Mr. GEORGE CROMWELL, of Newgate-street; Messrs. JOSEPH TURNER and Co. of Little Britain; and Mr. WILLIAM FARMER, of Wood-street, Cheapside; expressing their great approbation of Mr. Saddington's machine, the novelty of its principle, and the accuracy of its work.
